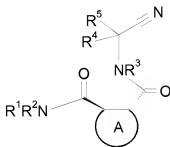


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Previously presented) A method of inhibiting Cathepsin S in a warm blooded animal comprising administering a compound of formula (I):



(I)

in which:

A is a 6-membered ring optionally containing a double bond and optionally containing an oxygen atom or NR group in the ring;

R is hydrogen or C₁₋₆ alkyl;

R¹ and R² are independently, C₁₋₆ alkyl or C₃₋₆ cycloalkyl both of which can optionally contain one or more O, S or NR³ groups, or R¹ and R² together with the nitrogen atom to which they are attached form a 3,4-dihydroisoquinoline ring or a 5- or 6-membered saturated ring optionally containing a further O, S or N atom and optionally substituted by a group – (CH₂)_p–R⁶ where p is 0 to 3 and R⁶ is C₁₋₆ alkyl, CONR⁷R⁸ where R⁷ and R⁸ are independently hydrogen, C₁₋₆ alkyl which can optionally contain one or more O, S or NR³ groups, or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR³ group;

or R⁶ is a 4 to 7-membered saturated ring optionally containing one or more O, S or N atoms, or an aryl or heteroaryl group containing one to four heteroatoms selected from O, S or N, the saturated ring, aryl and heteroaryl groups all being optionally substituted by halogen, amino, hydroxy, cyano, nitro, carboxy, CONR⁷R⁸, SO₂NR⁷R⁸, SO₂R³,

trifluoromethyl, NHSO_2R^3 , NHCOR^3 , C_{1-6} alkyl, C_{1-6} alkoxy, SR^3 or NR^9R^{10} where R^9 and R^{10} are independently hydrogen, C_{1-6} alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR^3 group;

R^3 is hydrogen or C_{1-6} alkyl;

R^4 is hydrogen or C_{1-6} alkyl;

R^5 is hydrogen, C_{1-6} alkyl or C_{3-6} cycloalkyl both of which can optionally contain one or more O, S or NR^3 groups or R^5 is aryl or a 5- or 6-membered heteroaryl group containing one or two heteroatoms selected from O, S or N, the aryl and heteroaryl groups all being optionally substituted by halogen, amino, hydroxy, cyano, nitro, carboxy, CONR^7R^8 , $\text{SO}_2\text{NR}^7\text{R}^8$, SO_2R^3 , trifluoromethyl, NHSO_2R^3 , NHCOR^3 , C_{1-6} alkyl, C_{1-6} alkoxy, SR^3 or NR^9R^{10} where R^9 and R^{10} are independently hydrogen, C_{1-6} alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR^3 group;

or R^4 and R^5 together form a 5- or 6-membered saturated ring optionally containing a further O, S or NR^3 group and optionally substituted by, C_{1-6} alkyl;

and pharmaceutically acceptable salts or solvates thereof to a warm blooded animal.

Claim 2. (Previously presented) The method according to claim 1, wherein A is a cyclohexane ring.

Claim 3. (Previously presented) The method according to claim 1, wherein R^1 and R^2 together with the nitrogen atom to which they are attached form an unsubstituted morpholine ring or a piperidine ring substituted by a group $-(\text{CH}_2)_p-\text{R}^6$ where p and R^6 are as defined in claim 1.

Claim 4. (Previously presented) The method according to claim 1, wherein R^3 is hydrogen.

Claim 5. (Previously presented) The method according to claim 1, wherein R^4 is hydrogen.

Claim 6. (Previously presented) The method according to claim 1, wherein R⁵ is hydrogen or phenyl optionally substituted by C₁₋₆ alkyl or C₁₋₆ alkoxy.

Claim 7. (Previously presented) The method according to claim 1, wherein the compound of formula (I) is selected from:

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-(morpholin-4-ylcarbonyl)cyclohexanecarboxamide,

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-([4-(4-fluorobenzyl)piperazin-1-yl]carbonyl)cyclohexane carboxamide,

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-(3,4-dihydroisoquinolin-2(1H)-ylcarbonyl)cyclohexane carboxamide,

(±) Trans-N-(cyanomethyl)-2-([4-(4-fluorobenzyl)piperazin-1-yl]carbonyl)cyclohexanecarboxamide,

(±) Trans-N-[cyano(2-methoxyphenyl)methyl]-2-[(4-methylpiperazin-1-yl)carbonyl]cyclohexanecarboxamide,

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-([4-(4-fluorophenyl)piperazin-1-yl]carbonyl)cyclohexane carboxamide,

(1R,2R)-N-(4-Cyano-1-methylpiperidin-4-yl)-2-([4-(4-fluorophenyl)piperazin-1-yl]carbonyl)cyclohexane carboxamide,

and pharmaceutically acceptable salts thereof.

Claim 8. (cancelled)

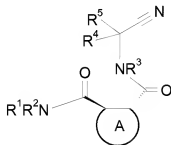
Claim 9. (Withdrawn) A pharmaceutical composition comprising a compound of the formula (I) as defined in claim 1 or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable diluent or carrier.

Claim 10. (Withdrawn) A method for producing inhibition of a cysteine protease in a mammal, such as man, in need of such treatment, which comprises administering to said mammal an effective amount of a compound of as defined in claim 1, or a pharmaceutically acceptable salt thereof.

Claim 11. (Withdrawn) A method for producing inhibition of a cysteine protease in a mammal comprising administering to said mammal an effective amount of a compound as defined in claim 1, or a pharmaceutically acceptable salt thereof.

Claim 12. (Withdrawn) A method for treating pain in a mammal in need of such treatment, comprising administering to said mammal an effective amount of a compound as defined in claim 1, or a pharmaceutically acceptable salt thereof.

Claim 13. (new) A compound of formula (I):



(I)

in which:

A is a 6-membered ring optionally containing a double bond and optionally containing an oxygen atom or NR group in the ring;

R is hydrogen or C₁₋₆ alkyl;

R¹ and R² are independently, C₁₋₆ alkyl or C₃₋₆ cycloalkyl both of which can optionally contain one or more O, S or NR³ groups, or R¹ and R² together with the nitrogen atom to which they are attached form a 3,4-dihydroisoquinoline ring or a 5- or 6-membered saturated ring optionally containing a further O, S or N atom and optionally substituted by a group – (CH₂)_p-R⁶ where p is 0 to 3 and R⁶ is C₁₋₆ alkyl, CONR⁷R⁸ where R⁷ and R⁸ are independently hydrogen, C₁₋₆ alkyl which can optionally contain one or more O, S or NR³ groups, or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR³ group;

or R⁶ is a 4 to 7-membered saturated ring optionally containing one or more O, S or N atoms, or an aryl or heteroaryl group containing one to four heteroatoms selected from O, S or N, the saturated ring, aryl and heteroaryl groups all being optionally substituted by halogen, amino, hydroxy, cyano, nitro, carboxy, CONR⁷R⁸, SO₂NR⁷R⁸, SO₂R³, trifluoromethyl, NHSO₂R³, NHCOR³, C₁₋₆alkyl, C₁₋₆alkoxy, SR³ or NR⁹R¹⁰ where R⁹ and R¹⁰ are independently hydrogen, C₁₋₆alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR³ group;

R³ is hydrogen or C₁₋₆alkyl;

R⁴ is hydrogen or C₁₋₆alkyl;

R⁵ is hydrogen, C₁₋₆alkyl or C₃₋₆cycloalkyl both of which can optionally contain one or more O, S or NR³ groups or R⁵ is aryl or a 5- or 6-membered heteroaryl group containing one or two heteroatoms selected from O, S or N, the aryl and heteroaryl groups all being optionally substituted by halogen, amino, hydroxy, cyano, nitro, carboxy, CONR⁷R⁸, SO₂NR⁷R⁸, SO₂R³, trifluoromethyl, NHSO₂R³, NHCOR³, C₁₋₆alkyl, C₁₋₆alkoxy, SR³ or NR⁹R¹⁰ where R⁹ and R¹⁰ are independently hydrogen, C₁₋₆alkyl or together with the nitrogen atom to which they are attached form a 5- or 6-membered saturated ring optionally containing a further O, S or NR³ group;

or R⁴ and R⁵ together form a 5- or 6-membered saturated ring optionally containing a further O, S or NR³ group and optionally substituted by, C₁₋₆alkyl;
or pharmaceutically acceptable salts or solvates thereof.

Claim 14. (new) The compound according to claim 13, wherein A is a cyclohexane ring.

Claim 15. (new) The compound according to claim 13, wherein R¹ and R² together with the nitrogen atom to which they are attached form an unsubstituted morpholine ring or a piperidine ring substituted by a group -(CH₂)_p-R⁶ where p and R⁶ are as defined in claim 1.

Claim 16. (new) The compound according to claim 13, wherein R³ is hydrogen.

Claim 17. (new) The compound according to claim 13, wherein R⁴ is hydrogen.

Claim 18. (new) The compound according to claim 13, wherein R⁵ is hydrogen or phenyl optionally substituted by C₁₋₆ alkyl or C₁₋₆ alkoxy.

Claim 19. (new) The compound according to claim 13, wherein the compound of formula (I) is selected from:

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-(morpholin-4-ylcarbonyl)cyclohexanecarboxamide,

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-{[4-(4-fluorobenzyl)piperazin-1-yl]carbonyl}cyclohexane carboxamide,

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-(3,4-dihydroisoquinolin-2(1H)-ylcarbonyl)cyclohexane carboxamide,

(±) Trans-N-(cyanomethyl)-2-{[4-(4-fluorobenzyl)piperazin-1-yl]carbonyl}cyclohexanecarboxamide,

(±) Trans-N-[cyano(2-methoxyphenyl)methyl]-2-[(4-methylpiperazin-1-yl)carbonyl]cyclohexanecarboxamide,

(1R,2R)-N-[Cyano(2-methoxyphenyl)methyl]-2-{[4-(4-fluorophenyl)piperazin-1-yl]carbonyl}cyclohexane carboxamide,

(1R,2R)-N-(4-Cyano-1-methylpiperidin-4-yl)-2-{[4-(4-fluorophenyl)piperazin-1-yl]carbonyl}cyclohexane carboxamide,

and pharmaceutically acceptable salts thereof.